SPECIFICATIONS OF ADVANCE LIFE SUPPORT AMBULANCE

FOR PROCUREMENT
UNDER
NATIONAL HIGHWAY ACCIDENT RELIEF SERVICE SCHEME (NHARSS)

An Advance Life Support Ambulance is a vehicle that shifts the reasonably stable patient from one hospital / clinic to other hospital for further treatment. It can also be utilized in the case of any eventuality for transportation of accident victims or any other patient from accident site to nearest possible hospital.

The Advance life support ambulance will provide primary and secondary patient transportation from one place to another without aggravating the injuries and with sufficient comfort level.

The **primary patient** is one who is on a self loading, collapsible stretcher, whereas **secondary patient** is on a squad bench. This squad bench can additionally be utilized to transport relative(s) of a patient, alternatively more than one patient / victim, who can travel in seating mode/on a stretcher on this bench. The ambulance patient loading should be from the rear door opening side-wise.

General Vehicular Design and Floor Plans:

This ambulance should be either of CMVR approved monocoque design or should be fully built on chassis of a major Indian OE manufacturer of repute. In either case, the vehicle manufacturer should have dealership network and repair servicing facility in major cities of India.

The ambulance should be designed, built and complete with operating accessories as specified herein. The assembly, sub-assembly and equipment should be integrated in such a way so as to enable the vehicle function in a reliable way and in a sustained fashion for durability, safety and comfort.

The design of the vehicle and the specified equipment shall permit accessibility for servicing / replacement and adjustment of components / parts and accessories, with minimum disturbance to other components and systems. Also, the bidder shall ensure that sufficient re-inforcement is provided to protect the components, assemblies, pipelines, tubing, wirings, etc which are susceptible to damage / hazards encountered during on-road, off-road, cross-country operations of ambulance.

The emergency medical care vehicles, including chassis, ambulance body, equipment, devices, medical accessories and electronic equipment shall be brand new standard commercial products, tested and certified to meet or exceed the requirements of these specifications.

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Vehicle Operation, Performance and Physical Characteristics

The ambulance should meet the axle load distribution as per Central Motor Vehicles Rules.

The weight distribution between right hand side wheel(s) and left hand side wheel(s) (individually) should not exceed 5 % of the axle load.

To provide for maximum safety, the manufacturer shall locate vehicle mounted components, equipments and supplies to provide a vehicle that is laterally balanced and has front / rear loading that is proportional to axle loading.

The manufacturer under GVW condition and unladen condition should measure the Centre of Gravity (CG) and declare the stability for roll-over angle. The gross payload applicable herein is maximum 1.5 ton. (This payload is after the ambulance is fully built accommodating all necessary fitments, equipment, tools, etc).

Overall Dimensions

The **overall length** of the ambulance should not exceed 550 cm, excluding rear steps and bumper guard.

The **overall width** of the ambulance should not exceed 244 cm, excluding mirror, lights and safety accessories.

The **overall height** of the ambulance should not exceed 279 cm including roof mounting equipment (viz. A/c etc) and excluding Radio Antenna.

The **finished floor (loading) height** shall be a maximum of 84cm.

Overhang

The front overhang of the vehicle shall not exceed 40 % of the wheelbase (excluding front tow hook). The rear overhang of the vehicle shall not exceed 60 % of the wheelbase (excluding rear entry steps and toe hook).

Ground Clearance, Angle of Approach, Departure and Ramp Breakover

As per CMVR for the specific vehicle category.

Diesel Engine and Power Train

The diesel engine should meet BS III requirements of CMVR TAP Document, prevailing in the state of registration of the vehicle as on date of commissioning.

The engine coolants, lubricants, oil etc should be able to perform satisfactorily under normal climate conditions for all seasons across India. The accessibility to

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check, maintain and refueling for oil, lubricants etc should be easily accessible and marked / symbolized.

The engine horse power, torque, drive train and transmission and tyres should be such that it should meet the following requirements:

1. The vehicles shall be capable of a sustained speed of not less than 90km/h over dry, hard surfaced, level roads
2. The engine of the vehicle should be of minimum 75 HP generation capacity.
3. The vehicle should be able to negotiate hilly area gradients and sharp bends.
4. As regards gradeability, the ambulance should be able to negotiate min. gradeability of 7 deg. For hilly areas it is desirable to have more than 10.2 deg.

The vehicle should meet the Central Motor Vehicle Rules requirement of grade ability.

Steering & Suspension

Ambulance should be fitted with **power assisted steering system**, for easy and comfortable steerability of the vehicle at low and high speeds. The vehicle also should comply with the steering requirements, as per CMVR.

Vehicle shall be equipped with laterally matched sets (front and rear) of spring, torsion, or air **suspension system** components suitable to ensure comfortable ride and safety of the patient. The suspension maybe reinforced suitable to provided additional comfort.

Tyres

The tyres fitted on the ambulance should be **Radial tyres** (with / without tube) of Indian make, and type approved by any of the testing agencies specified in CMVR, 1989 for its load, speed performance and durability..

A spare wheel should be housed at appropriate place and indicated.

Brakes

The vehicle should meet all requirements of CMVR. Though it is desirable that the ambulance be equipped with ABS System, fitment of the same is optional.

Fuel Tank (Fuel Storage Capacity)

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The fuel tank should be approved as a stand-alone component, as per Indian Standard / CMVR requirement, for all necessary safety aspects and performance.

The capacity of the fuel tank should be such that it should suffice the need 350 km with one-time filling. The fuel tank should be with fuel fill splash plates.

Cab - Body Provision

Additionally, driver's cabin should be provided with -

a. Dual sun visors (padded)
b. Armrests, mounted on each side door
c. Compartment ventilation, other than windows
d. Key operated ignition / starter switch
e. Fuel Gauge(s)
f. Engine temperature gauge
g. Speedometer with odometer
h. Environmental controls (air conditioning etc)
i. Seatbelts and shoulder harness for driver and passenger
j. Dual outside mirrors
k. Cab lighting and controls
l. Electric horn(s)
m. Rear Door open indicator

Body Structure

Ambulances of monocoque design should have body structure as per CMVR.

In ambulances built on OEM Chassis, the ambulance should be fabricated at an IS 16949:2002 or equivalent certified facility & the fabrication should meet or exceed the following criteria:

Combination of 10/12/14G pressed section & MS square tubes, structure with hot dip phosphating process for anti-corrosion, rolled "C" channels for the floor cross members with pressed section for the roof & floor longitudinal.

Body cross member shall be welded with long members using gusset and shall be designed to support the Ambulance body rigidly and withstand tensional loads. Complete structure welding with CO2 process.

Drip rail(s) shall be provided around the entire body and have drain points at each corner. Body structure shall include gusseting to provide diagonal strength.

Exterior panelling should be with 18G aluminium sheets & coils for rooftop.

In case of fabrication using the Sandwich Panel Technology, The walls shall be made of joint less sandwich elements with

- Outer & Inner Skin - Minimum 1.5 MM Thick, Traffic White (RAL 1016, R-252, G-255, B-255) dyed Glass fiber laminates with high standard gel coat layer based on isophthatic acid with UV stabilizer of reputed brand
- CFC free, high performance, rigid polyurethane block foam, minimum 44 mm thickness of reputed brand.

The ambulance should also have tow hook in the front as well as rear.

Front & Rear show

Original cowl front show with single piece curved windscreen laminated glass, front bumper and FRP centre grill with headlight housing.

Rear show with single piece screen glass on both flaps of the door and MS/FRP bumper to suit front/rear facia.

Side Windows

Full Sliding windows/ combination of fixing & sliding aluminium frame / tiltable aluminium frame square windows with toughened tinted glasses.

Window frames should be black powder coated. Curtains for rear/side windows to ensure patient privacy in patient compartment should be provided.

Safety Glass

The ambulance should be fitted with safety glasses as per CMVR.

Windscreen Wiping System

The front windshield should have screen wiping system, electrically operated. The washer system should have minimum 1.5 litres tank capacity.

The tank should be located at an appropriate location and should be easily accessible for re-filling.

Patient Compartment

The patient compartment shall have the provisions for housing:

- a roll-in self-foldable/collapsible stretcher for the primary patient
- a folding/scoop stretcher
- a squad bench to accommodate minimum four sitting patients or the above mentioned folding/scoop stretcher

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- a washbasin with foot operated tap
- Soap Dispenser and Tissue Dispenser
- Medical Equipment as specified
- Various drugs and consumables
- Cool/warm box
- Other Equipment as specified

Patient compartment volumetric space shall be sufficient in size to transport occupants and accommodate / store all stretchers, squad / cots and litters.

The **length** of the patient compartment measured from partition to the inside edge of the rear loading door at the floor level shall be at least 310 cm.

The length should provide at least 64 cm and not more than 76 cm of unobstructed space at the head of the primary patient, when measured from the face of the backrest of the Doctor's/Paramedic's Seat to the forward edge of the stretcher.

A min of 25 cm shall be provided from the end of the stretcher to rear loading door, to permit clearance for any traction or long-board splints.

The **width** of the compartment after installation of cabinets shall provide 46 ± 15 cm clear aisle walkway between stretcher / cot and the base of squad bench, with the cot located in the street side (non-centred) position.

The patient compartment shall provide at least 152 cm **height** over the primary patient area, measured from floor to ceiling panels.

An **access window** between Driver's Cabin and Patient Compartment should be provided at appropriate location for visual checks and voice communication between the cabin and patient compartment. This window should be latch able from the patient cabin side and should be transparent, shatter proof and shall have adjustable opening.

Complete **Interior panelling** of the sidewalls, partition between patient cabin and driver cabin, roof (of both patient and driver cabin) & back door panels should made from long life superior quality Fibre Reinforced Polymer (FRP) or ABS. (not applicable for Sandwich Panel Fabrication)

The FRP/ABS wherever used, should have the following characteristics:

- Thickness – minimum 4.0 mm for FRP or 3.0mm for ABS
- Inbuilt colour
- Fire retardant as per IS – 6746 of 1988 or latest
- Should meet lamination standard IS – 10192 or latest

There should be PUF / PU min. 12 mm thick or thermocol min. 40mm thick or equivalent insulation for reduction of heat and noise within the patient compartment. The insulating material should be non-toxic, non-settling type, vermin proof, mild dew proof and non hygroscopic.

Provision should be made for placement of power switches / sockets/ manifold outlets/ major medical equipment like Defibrillator, Monitor, Ventilator, etc in FRP, with sufficient reinforcement for holding them securely while in transit. Unobstructed access & full functionality of the fittings/equipment as desired for optimal patient care must be ensured during this process.

Adequate provision for storage of medicines/consumables/equipment should be made by providing lockable **cabinets & drawers**. These should be made of fire retardant material, in sync with the ambulance's internal look and feel. The drawers should be on steel guide ways (of reputed brands only) & provided with ball socket locks to arrest the drawers opening during motion of ambulance.

The **floor** should be fitted with minimum 3.125 mm aluminium cladded chequered sheet or fire retardant 12 mm marine plywood with 2mm thick Anti-skid PVC vinyl matting or FRP with Anti-skid coating.

The **footsteps** should be provided appropriately, if the patient compartment floor is more than 46 cm above the ground. This step should be transverse length equivalent to the door opening. If there is more than one step, the steps should be equidistant. The steps shall not be located or exposed to the interior of the ambulance, even when the rear door is closed. The step tread shall have minimum depth of 13 cm and max. depth of 27 cm. If the steps protrude more than 18 cm from the rear the vehicle, fold-up steps should be provided.

The complete interior should be edgeless and suitable for easy cleaning / scientific fumigation / treatment of disinfectants. The ambulance interiors should be designed with care to avoid injuries by fall of equipment or cylinder on persons inside the ambulance in case of turmoil due to bad road conditions. Upholstered padding/cushions shall be provided at the upper interior areas of the door frames. Similar padding/cushions also shall be furnished at other areas that may be capable of causing injury. The finish of internal & external patient/driver cabin should meet CMVR requirements of external projection.

Doors: Two side opening patient compartment door openings shall be provided at the rear of the ambulance. There shall be an optional door opening on the left forward side and two side opening doors the rear of the body for loading a patient on a cot. All ambulance body doors shall be designed for easy release and should be lockable to ensure the safety of the equipment when the vehicle is parked. A "Door-Open" warning device shall signal (indicate in the cab) when doors are not closed. Each door shall have effective compression or overlapping seals to prevent leakage of exhaust fumes, dust, water, and air.

The optional **side opening door** of the patient compartment shall be a sliding-type door and should provide a minimum left-side clear opening of 76 cm wide and of 160 cm high or the monocoque chassis manufacturer's standard opening. Should the rear doors be rendered inoperable, the side door and interior configuration shall permit emergency removal of the patient either on a backboard or other device used for spinal immobilization. **The side opening door, though desirable, is optional.**

The **rear loading door** for entry into Patient Compartment shall not be less than 117 cm in height with minimum width of 112 cm and the door opening should be side-ways (preferably 270 degrees opening). Each door should be hinged at least at two places and should have firm latching provision.

When doors are not 270 degrees opening, a red light or reflector, minimum 7.6-cm (3-in.) diameter, shall be installed, one on the interior surface of the side of each rear door. The reflectors shall be so positioned as to provide maximum visibility when the doors are in the fully open position. The opening of the door should be possible from inside and outside at all times. Under no condition, during travel mode, this door should open.

A **Roll-in Self Foldable Stretcher (Collapsible Cot)**of a reputed brand (preferably with capability to convert into wheel chair) should be provided for the primary patient. The said stretched should automatically collapse when wheeled into the patient compartment over a fixed 'collapsible cot base'. The **'collapsible cot base'** should preferably have a built in slot to accommodate the scoop stretcher and spine board.

A seat for the **Doctor /Paramedic** should be installed facing towards the rear of the patient compartment & it should be near to the primary patient's head for easy accessibility. This seat shall not be less than 40 cm deep, 40 cm wide and 400 cm height, measured to the top of the seat cushion and should have adequate restrains for the passenger.

A **Squad bench** with backrest suitable to accommodate minimum four sitting patients or folding/scoop stretcher shall be installed along the side wall. A minimum 50mm thick high density cushion to be provided for comfort. The squad bench should be upholstered with waterproof washable cover and should have adequate restrains for the sitting patients as well as the stretcher.

Grab Rail made of Stainless steel pipe with proper support / fixing, for ease in entering shall be installed in the ceiling. Minimum four **IV hooks** to be provided at suitable locations to ensure proper patient care.

A **washbasin** with foot-operated tap should be provided at a suitable location. A fresh water tank of minimum 10lts capacity for the wash basin with provision for easy refilling should be installed. There should be a soap dispenser and tissue dispenser provided in the vicinity of the washbasin.

A reliable, robust & easy to use Sterillium/Bactorub/equivalent **alcohol based hand rub dispenser** supporting standard off the shelf bottles of minimum 500ml capacity should be provided at a suitable location which should be within easy reach of the doctor/paramedic. Concealed portable **dust bins** with spring loaded lids for waste disposal should be provided at suitable locations.

A **"GSM Fixed Cellular Terminal with Caller-id"** of reputed brand to enable single line PSTN simulation made available from GSM network should be fixed at a suitable place in the patient cabin keeping in view the caller-id visibility and the GSM reception. This terminal shall be unlocked, support minimum Dual Band GSM 900/1800 MHz and should accommodate a standard External SIM Card (3V, 1.8V). (GSM SIM Card shall not be provided along with and shall be the responsibility of the end-user).

This terminal shall be paired with a **"2 way Intercom phone" (preferably cordless)** of a reputed brand to enable easy communication between the patient & driver cabin and also to facilitate calls on the GSM network. This instrument should be located in the patient compartment at a location within the easy reach of the doctor/paramedic. The instrument in the driver cabin should be located at an optimal location. These instruments should have adequate restrains so as to not dislodge/fall during travel.

A battery powered **'thermo-electric cooler cum warmer'** of minimum 12lts capacity and capable of running on 12 volts DC / 230 volts AC should be provided at a suitable place. This should allow for a temperature control from -5°C to + 65°C at + 25°C ambient, step-lessly controlled with two thermostats and should be secured firmly so as to ensure it doesn't move in the patient cabin during travel.

A standard quality **LED/Digital clock** to be provided in the patient compartment. It should have a minimum Letter (font) Size of 50 to have better visibility.

Two numbers of multipurpose **fire extinguishers** of ABC Type (ISI marked & conforming to BIS: 13849-1993 or latest) duly filled, of capacity and quantity as per the provisions of Central Motor Vehicle Rules 1989 should be provided. Provision shall be made, with straps / Velcro tapes and mounting on the flooring for placing fire extinguisher. One fire extinguisher shall be placed in the Driver's cabin and the second in patient's compartment, at appropriate location, where it is easily visible and symbolized.

All fitments/equipment/outlets/switches/storage spaces, etc in the patient compartment should be permanently & clearly labelled in English. The font used should be easily readable and in contrasting colour of the background.

Oxygen Delivery System

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The ambulance shall have hospital type piped medical oxygen system (manifold) capable of storing and supplying medical grade oxygen. The system should comprise of an oxygen cylinder manifold as specified, a cylinder changing wrench, chained and clipped with/within the oxygen cylinder compartment; a pressure regulator; oxygen piping approved for medical oxygen; a duplex oxygen outlet station with quick-disconnect interface for the primary patient and a second duplex oxygen outlet station with quick-disconnect interface for the secondary patient.

The **manifold** should have oxygen cylinders of B or D size only (**minimum one D & one B type cylinder** / equivalent). An adapter to refill the cylinders from a bulk cylinder should be provided.

The manifold should be so designed that it shall ensure proper fixation of cylinders during travel and should ensure easy cylinder changing and positioning.

There should not be any electrical connection in near vicinity or inside the oxygen cylinder housing, except pressure regulator integrated with flow control valve.

A medical grade **oxygen pressure regulator** with inlet filter & static outlet pressure of 4.12 bars / 60 psi shall be provided at the cylinder manifold. It shall include a pressure gauge, an inlet filter, a safety relief valve; a locking mechanism to prevent settings from being inadvertently changed; shall maintain accurate readings and calibrations during ambulance operation and not be affected by the temperature conditions.

Only **High Pressure Tubing** approved for medical oxygen (280 bar / 4060 psi test pressure), with male female (5/8 inches) bull nose forged Brass connectors at both the ends, to connect it from the oxygen cylinder to the pressure regulator inside the patient cabin should be used.

Minimum **two oxygen outlets for the primary patient**, concealed in the side wall near the patient head end (distance between patient head and oxygen / air outlets to be less than 89 cm) to be provided - one outlet normally meant for Oxygen therapy through flow meter & one meant for driving breathing equipment like ventilators, etc.

A **duplex oxygen outlet for the secondary patient** at a suitable location on the opposite side wall is to be provided.

These duplex outlet stations shall be appropriately labelled and colour coded to indicate their use with medical grade oxygen. Oxygen outlet stations shall be installed with sufficient vertical space to accommodate attachment of flow meters, humidifiers, and nebulizers. There shall also be sufficient horizontal clearance to prevent interference with the suction inlet quick-disconnect if any and equipment directly attached thereto.

Two (2) Nos. of **'Oxygen Flow Meter with Humidifier'** shall be provided. The Flow Meters should be pressure compensated, be able to regulate the flow from 0 to 15 litres per min and should show the actual oxygen flow rate using a floating-ball indicator. The flow meters shall be installed vertically so as to not interfere with the other outlets and should be easily readable from the Doctor's/Paramedic' seat. The Humidifier should have a slim impact resistant polycarbonate bowl with metal Cap and T type inlet outlet nipples. All the connectors should be of chrome plated on brass material.

Noise

The ambulance should be designed and assembled of its aggregates and components so as to meet the noise level requirements in dB (A) scale, as per IS 3028-1998 and it also should meet the driver inside noise as per AIS-020.

Necessarily, the noise levels in the patient compartment measured at six different locations [patient ear, rear side of interior of ambulance, front side of interior of patient compartment, on left and right side of patient cabin – with reference to centreline of the cabin] should not exceed 80 dB(A.)

Air-Conditioning

The AC unit should be installed at a suitable location in the patient cabin to ensure there is no congestion in the driver/patient cabin. With all windows & doors closed, the system should be capable of lowering the cabin temperature to a maximum of 26 degrees Celsius within 30 minutes from 35 degrees Celsius ambient temperature. The gas used for Air conditioning should be environment friendly as per International regulatory requirements. The AC should be of reputed manufacturer who has pan India service network. The engine idling rpm should be so designed and tuned to fulfil the requirements of AC Unit. Though it is desirable that the ambulance be equipped with Heating System for the patient/driver compartment, fitment of the same is optional.

To ensure proper ventilation in case of AC failure, one number each of roof / wall mounted fan be provided in the driver's cabin and patient compartment.

Siren

A high quality combination **electronic siren with integrated Public Addressing System** of minimum 100W (PMPO) shall be provided. The siren's controls should have full range volume control and should permit the following sounds: Manual, Wail, and Yelp. The siren sweep rate should be 10-18 cycles per minute (ambulance mode). The microphone should be of a noise-cancelling type. Siren/Speakers shall not protrude beyond the face of the bumper or bumper guards if provided in there.

The control panel for this system should be fixed at a suitable location in the driver compartment.

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Signalling devices, direction indicators & stop lamps

The ambulance should be fitted with signalling devices, viz. Four chamber rear signalling devices, comprising of –

- Parking signalling device,
- Reverse signalling device,
- Brake signalling device and
- Direction Indicators signalling device

Also, ambulance should be fitted with front head lamps, so as to give sufficient illumination on the road with aid of high beam and low beam.
Further, signalling devices should include fitment of front direction indicators (including front and rear parking indicator) for aid during turning / parking purpose.

Signalling devices, direction indicators and stop lamps should meet the requirements of Central Motor Vehicles Rules # 102, 103, 104, 105 & 106.

Fitment of fog lamp is mandatory for all ambulances.
Besides aforementioned lighting system, all ambulances should include a beacon lamp (mounted at roof top, having three flashers on both sides of the ambulance. The beacon shall be rhombic shaped, double layered structure, combination of continually lit turning lights. It should have high luminance, voltage 12V DC & a power of 92 ± 18W.

The ambulance should have minimum fitment, as follows:

Sr. No.	Description of Lamps	Colour	Qty
1.	Headlamp	White	02 Mandatory 04 (Optional)
2.	Front side marker lamp	Amber	02
3.	Front Side Reflector	Amber	02
4.	Front turn signal (includes vehicular hazard warning signal flasher)	Amber	02
5.	Rear side marker lamp	Red	02
6.	Rear Side reflector	Amber	02
7.	Rear Reflector	Red	02
8.	Rear Stop, Tail and	Red	02
	Turn Signal lamp, includes vehicular hazard warning signal flasher	Amber	
9.	Rear backup lamp	White	01
10.	Rear License Plate lamp	White	01
11.	Roof Mounted bar, consisting of two segments.		02
12.	Rear flood flight	White	01
13.	Side flood lights	White	02
14.	Fog lamps, in the front	White	02

Lighting and Illumination (Exterior and Interior)

The basic exterior ambulance lighting should meet the day as well as night-time running lights requirements.

The front and rear side marker lamps should flash in conjunction with the direction indicators.

The flood lights and spot lights should be operable as and when desired by the user. But they must be provided for easy handling.

The light assemblies should be stainless steel or plastic or weather proof material.

The installation of such lights should not cause electrolysis / corrosion of light housing or vehicle body.

The roof mounted bar emergency light system should provide 360 degrees of conspicuousity during its mission. The other lighting system loads of alternator base should not hamper the performance of emergency lights.

Lamps and its assemblies, reflectors should meet the photometric, chromaticity and physical requirements of Rule No. 124 of CMVR.

The head-lamp levelling should be provided either automatic or manual.

Loading lights shall provide minimum 500 candle power beam and shall illuminate the area surrounding the back loading doors.

Loading light(s) shall automatically be activated when rear doors are opened.

There should be provision for Spot Light to use at night times for surveillance. The electrical gadget should be able to manoeuvre through 360 degrees and shall be manually operated.

Driver's compartment room light, instrument panel light, master switch panel and console light should be adequately provided.

There should not be any reflecting or glaring surfaces inside the driver cabin, which would distract driver's attention.

Flashing and audio alarms in the driver cabin should be so provided, so as not distract driver's attention during motion.

Interior Patient Compartment Illumination:

The nominal light illumination required in the patient compartment should not be less than 15 foot candelas, when measured along the centreline of the floor

without any ambient light. The minimum volume of the patient compartment considered here is minimum 9.2 cubic meters.

The primary patient squad / stretcher shall be provided with 35 foot candelas of illumination measured on at least 90 % of the squad / stretcher surface.

The patient compartment dome light (in the dimming setting) and loading lamp shall be automatically activated when the patient compartment door are open.

All interior doom lighting including check out lights shall be flush mounted and shall not protrude more than 3.8 cm. The florescent light or CFL lights can be used, in place of incandescent lights, which fulfil the above requirements.

- The lamps should be firmly secured and should not get loose or fall down during vehicle movement or vibration.

Check Lights

The check lights shall be furnished with at least 6 candle power lamps or equal and with five minute timer switches. The checkout light one should be located towards the front and one should be at the rear of the patient compartment.

Electrical Requirements

In ambulance, there should be two types of electrical design fitment and performance requirements.

1. Electrical power generated by the integrated alternator with engine. This alternator power generated should meet the requirement of automobile lighting, signalling, roof mounted bar, beacon lamps, visual and audible alarms, including HVAC requirements.

   The alternator of the vehicle should be heavy duty to fulfil all required loads mentioned. Moreover, it should also provide additional 20 % (i.e. 120 %) of its full rated output, for continuous operation.

2. For auxiliary power requirements of the patient cabin – An inverter to be installed in a suitable place in the vehicle, which will fulfil the power requirements of medical equipments, interior illumination devices lamps, bulbs, tubes, entrance illumination, spot lights, etc.

Solid State Inverter for Onboard 220-V A/C Power

The ambulance shall have onboard a Solid State Inverter of reputed brand to meet with the patient compartment power requirements for medical equipment, interior illumination devices lamps, bulbs, tubes, entrance illumination, spot lights, etc.

The inverter should be of true sine wave type and should be of sufficient capacity so as to meet all the electrical power requirements in the patient compartment for a minimum of two (2) hours on full load during travelling mode of the vehicle.

The inverter batteries should be situated outside the patient compartment at a suitable location.

There should be a circuit breaker provided in driver cabin to isolate the inverter from down line connectivity and indicate "on" or "off" position. This circuit breaker should be labelled and housed at an easily accessible location while also ensuring accidental switching off.

The inverter shall have the facility for charging from vehicle alternator (when vehicle is mobile) & 220V AC (when vehicle is stationary).

External charge port with spring loaded lid suitable for AC charging of the inverter batteries should be provided on the exterior of the vehicle at a suitable place.

10 Meter length, Three (3) core, 10 gauge / equivalent charging wire with high quality male three pin ends to be provided. This wire should be housed at a suitable and easily accessible location in the ambulance.

Radio Frequency Interference (RFI)

The ambulance electrical / electronic and mechanical equipment in running mode / on condition, should meet the Radio Frequency Interference standards [Electro Magnetic Interference (EMI) AIS – 004-1999].

Electrical Receptacles In Patient Compartment

There should be at least three numbers of 230 V marked receptacles (each with a switch and a socket with combination of 5 & 15 AMPS) and two receptacles for 12 V DC, of reputed make meeting IS1293 standards. The sockets shall be made up of an industrial grade thermo set electrical insulation material and resist heat and fire. The sockets shall have tubular contacts to ensure larger area of contact with the pin. The ring springs around the tubular contacts shall ensure uniform pressure and a firm unwavering multipoint contact. Socket shall have integrated shutters to prevent accidental contacts with live parts. The mountings shall be sturdy enough to handle wire/plug pressure and vibrations during transit.

Fuses and Electrical Safety

The vehicle battery rating should be such that it should be able to cater for at least 500 numbers of cold cranking amperage and thereafter should have spare reserve capacity of 180 minutes. The battery should be continuously charged through alternator and necessary electronic circuit to supply amperage for charging. If the battery is mounted in the engine compartment, it should be properly ventilated or protected with heat shield against under-hood temperature.

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There should be short-circuit as well as overload protection through fuses / Mini-Circuit Breaking (MCB) for different segmented electrical installations and the fuse rating should be mentioned on each fuse as well as three numbers of each fuse should be housed in the fuse box covered or at appropriate place.

The electrical fixtures should be flush mounted and should not protrude more than 50 mm. However, items such as monitors, ventilators, etc are excluded. The engine electronic system also should be immune to interference of radio frequency transmissions.

All electrical and electronic components shall be selected to minimize electrical loads thereby not exceeding the vehicle's generating system capacity. All electrical system components and wiring shall be readily accessible through access panels for checking and maintenance.

All switches, indicators, and controls shall be located and installed in a manner that facilitates easy removal and servicing. All exterior housings of lamps, switches, electronic devices, connectors, and fixtures shall be corrosion resistant and weatherproofed.

All switches, connectors, end-wiring should be rated to carry out minimum 125 % of their maximum ampere load. All wiring should confirm to ISI2645 specification. The wiring shall be permanently colour coded or marked the entire length of the wire for identification with easily read numbers and letters, or both, and routed in conduit. When cables are supplied by a component manufacturer to interconnect system components, these cables need not be continuously colour coded/identified. They shall be coded/ identified at the termination or interconnection points. All added wiring shall be located in accessible, enclosed, protected locations and kept at least 15 cm (6 in.) away from exhaust system components.

Except for those on large wires, such as battery cables, terminals shall be machine crimped to the wiring. A ratchet type hand crimper may be used where it is not possible to use a large machine crimper. Battery cable terminals, component terminals and connectors exposed to the ambient shall be coated with terminal corrosion preventive compound.

Electrical panels that are accessible to accidental contact shall have a protective cover, shield, and so forth, to prevent shorts that can result in injury, fire, or damage to the electrical system.

Electrical wiring and components shall not terminate in the oxygen storage compartment except for the oxygen controlled solenoid, compartment light, and switch plunger or trigger device. Wiring necessarily passing through an oxygen compartment shall be routed in a metallic conduit.

Emblems, Marking & Colour Scheme

Complete body exterior should be painted with PU base 2K paint, white in colour. It also should incorporate MoRTH specified colour scheme and logo design. Name of the Ministry must be painted in the body promontory. The logo and the letters will be approved by MoRTH, before final inspection of the prototype.

In addition to this, it also should incorporate the following:

1. There shall be a continuous blue stripe, of not less than 8 cm on cab and 15 cm on patient compartment, to encircle the entire ambulance with the exclusion of the hood panel.

2. Emblems and markings shall be of the type, size and location as follows :

   a. Front: The word "AMBULANCE" in Red, minimum 10 cm in height, shall be in mirror image (reverse reading) for mirror identification by driver's ahead.
   b. Side: The word "AMBULANCE" in Red, not less than 15 cm in height shall be painted on each side.
   c. Rear : The word "AMBULANCE" in Red, not less than 15 cm in height

All items in this section shall be of reflective quality and in contrasting colour of the exterior painted surface of the ambulance.

Tool Kit, Layout Drawings, Operating Manuals, etc.

The bidder should provide bare minimum tool kit for vehicle maintenance, operating manual, warning triangles, a set of spare bulbs for headlamp and fuses, a spare wheel ready for use, etc as per Rule 138 (iv) A of CMVR.

Laminated sheets, clearly showing the Patient/Driver Cabin Layout with location of equipment, fittings, switches, consumables, etc suitably depicted should be fixed in the patient/driver cabin at suitable locations.

Laminated sheet showing the electrical wiring diagram complete with location of various fuses and circuit breakers should be displayed in the vehicle at a suitable location.

Comprehensive User Manual/s written in simple English with detailed parts description, operating instructions, service contact numbers, etc for the Base Vehicle, Patient/Driver Compartment Equipments, Fittings, etc shall be provided. These should be printed on high quality paper (preferably laminated) and housed in water-resistant pouches.

A 12v Emergency Tyre Inflator with integrated/separate Flashlight should be provided.

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Sample drawing showing the layout of patient cabin is attached along with. The sample drawing is only a guidance for designing the ambulance. The bidders should strictly adhere to this guidance in consonance with the above detailed specifications as regards the location and positioning of various equipments, fitments, etc. while adapting the same to their vehicle dimensions.

The bidders should provide initial basic drawings showing location of various components, sub-assemblies for structure, interior layouts, fitment of oxygen cylinders, layout of doctor's chair, attendant chairs, wash basin, cabinets, Inverter, etc along with the technical bid. It also should show the location for storage of various equipment, tools and kits.

Quality Assessment and Inspection

Inspection would be carried out by the Committee formed by MoRTH, comprising representatives from Roads Wing(technical competent authority), Road Transport Wing & Internal Finance Wing of the M/o RTH ;, All India Institute of Medical Sciences, New Delhi and any of the testing agencies specified in CMVR, 1989.

In case an equipment/fitment with specifications detailed in this document is not available in the country or is technically not feasible, this committee may certify the use of equipment fulfilling the similar functional requirements without any change in financial liability after due consideration and documentation.

The decision of this Committee shall be final and binding in all respects.

The first inspection will be carried out at the first stage, when bidder completes the initial structure and sheet metal work of roof, side panelling, flooring, prior to laying of necessary electrical cable connections, tubing, etc. based on the approved drawing by competent authority.

Prototype second stage inspection will be carried out prior to pre-delivery inspection, so that the requirements specified above are fulfilled and complies, including type approval certificate for ambulance from competent authority.

The bidder has to provide all necessary documents, test reports and compliance certificates prior to delivery of the ambulance.

The accepted ambulance will be retained as the reference sample for subsequent produced ambulances. For any disturbance during subsequent production of other ambulance, the reference / master ambulance shall be referred for all practical purposes.

Performance Tests

The following ambulance items / systems / components and the vehicle as a whole, shall be necessarily be inspected, tested and verified for compliance to the specifications mentioned herein the tender document by the competent

authorities specified by MoRTH, GoI. The bidder shall bear any costs related with these or related requirements.

1. Internal and External photographs of the vehicle
2. Physical Dimensions and checks
3. Vehicle Weight Distribution
4. Road related performance tests (like brake testing, gradeability test, etc)
5. EMI test
6. Air Conditioning test
7. Functions of all controls systems, their layouts
8. Water Spray (Rain test)
9. Fording test / Seepage test
10. Dust ingress test
11. Kilometre coverage test
12. Oxygen system test
13. Verification on sample of Fire Retardant materials use
14. Operational and functional testing of medical equipments.
15. Type Approval trials as per CMVR 89 (as amended up-to-date)
16. Collection of Test Reports of various components / aggregates
17. Clause by Clause verification during final inspection.

Delivery Schedules

Qualified bidder would be given 2 months for preparation of prototype and one month for obtaining type approval from any of the testing agencies specified in CMVR, 1989 . Supply should be completed within six months.

The pre-delivery inspection should be carried out by testing authority indicating the VIN No., Engine No and Quality Checks. This Report should be submitted to MoRTH prior to release of payment to the bidder. The bidder has to supply consistent and quality product.

NOTE: 'Preferablly' / 'desirable' wherever used in the above specifications is only indicative of the better suited option and shall in no case be used to give preference to a particular specification during the evaluation of technical bids.

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Equipment for ALS Ambulance

NOTE: Equipment should be FDA/CE/BIS/Equivalent certified wherever applicable

BIDDERS SHOULD QUOTE PRICES ITEM WISE IN THE PRICE BID FOR THE FOLLOWING Sr. No. 1 - 38.

THE MINISTRY MAY DEPENDING UPON THE AVAILABILITY OF FUNDS ORDER ALL/FEW OF THESE ITEMS.

S.No.	Name of Medical Equipment	Specifications
1.	**Ambulance Cot**	• Roll-in Self Foldable Stretcher (preferably with capability to convert into wheel chair) of a reputed manufacturer like Ferno, etc • Collapsible, with minimum Four swivel wheels to allow cot to be handled and to slide into the ambulance easily without damaging the ambulance floor • One person should be able to raise and lower it into an ambulance easily • Built with anodized aluminium lightweight / stainless steel • Swing-down side rails to enable convenient patient transfer from bed to cot • Adjustable backrest angle from 0 - 65 deg • At least three strap-type restraining devices (chest, hip, and knee) to prevent longitudinal or transverse dislodgment of the patient during transit. • Provision to fix AA type oxygen cylinder

		• Dual I.V. holder, capable of being cot mounted • Padded wrist and ankle restraints, minimum one complete set • Fixing devices to secure the stretcher in place not allowing side to side or vertical movements in the ambulance while on run. • Locks on wheels/legs if required to ensure that the stretcher doesn't collapse/move while standing • 50 mm thick high density foam mattress holstered with water proof and fire proof material • Dimensions o Length: 190 – 200 cm o Width : 55 – 60 cm o Height: 80 – 85 cm • Loading Capacity : 160-180 kg
2.	**Scoop Stretcher**	• Should be light, safe and reliable • Aluminium alloy with adjustable length • Clutch Design (Lateralised / in center) so that the stretcher can be divided into left and right halves. • Easy to lock and unlock • 3 Quick release buckle belts • Dimensions: o Max. Size L*W*H): 225*45*6cm o Min. Size L*W*H : 168*43*7cm • Net weight: <10 Kgs • Weight bearing: 160-180 kg • To be supplied with a mountable & detachable 'Double Head Immobilizer'
3.	**Foldaway Stretcher**	• Light weight, portable & easy to carry • Made of high strength AL-alloy & should be 4-Folded when packed • Weight Bearing: 160-180 kg
4.	**Spine Board**	• High Density Polyethylene - Single piece • Rigid , Light & Floatable • Resistant to bumps and corrosion • Non absorbent, immune to infiltrations • Easy to clean- water & soap

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		• X ray & MRI compatible • Load Capacity : 160-180 kg • L*W*H : approx 184 * 45 * 5 cm • Rigid Head Blocks with restrains to be supplied along
5.	**Transfer Sheet**	• Two (2) transfer sheet with a minimum of six (6) handles, or equivalent
6.	**Wheel chair**	• Should be light, safe and reliable • Made of aluminium alloy with 4 wheels • Folded size : approx 93*51*16 cm • Net weight : less than 10 Kgs • Pull through, telescoping long handles built in to lift patients & carry them through narrow passages. • Two handles on the top to facilitate the lifting of patients , working in harmony with telescoping handles • Loading Weight : 160-180 kg
7.	**Bi-Phasic Defibrillator cum Cardiac Monitor with Recorder**	• Wall Mounted, Transport defibrillator cum Cardiac Monitor of a reputed brand like Philips Heart Start MRx, Zoll M-Series CCT, etc • Lightweight , Easy to Use with both Manual & AED Capabilities • Suitable for ambulance operation, with adult and paediatric external fixed paddles and Patient cables • Minimum 6.5 inches Colour LCD Display • Should be able to deliver shock from 2-200 joules through biphasic technology. • Should have charging time up to 200J in less than 6 seconds with a new fully charged battery • Should have built in Non invasive pacing and SpO2 monitoring • Should have 12 lead interpretative ECG and synchronized cardio version • Integrated Multi Parameter Monitor with the following parameters: o NIBP – Adult and Paediatric o SpO_2 - Adult & Paediatric o $EtCO_2$ Heart Rate

		○ Respiration Rate (Optional) ○ 12 Lead ECG • ECG signal shall be via defibrillator paddles, disposable defibrillation electrodes or patient cables • Should be able to print critical events via a built in printer • AC/DC Modules • Should have built in charger • Ambulance Mounting Bracket • Should be FDA/CE/BIS Approved • All required leads, probes, accessories & manuals to be supplied along with • Spare Disposable Pads – 10 no's each • Provision for future up-gradation to enable transmission of Patient Vitals via Telemetry for remote monitoring
8.	**Transport Ventilator**	• Should be wall mounted, light weight, robust and user friendly • Suitable for adults, children and infants up to 5 kg • Modes of ventilation: ○ CMV ○ Assist Control ○ PEEP • Separate control for inspiratory and expiratory time and flow rate. • Adjustable pressure limit to safely cope with all patients. • High inflation pressure alarm • Power source : Compressed air / oxygen (dependence on battery or AC power is not desirable) • it should be able to deliver respiratory rate ratio of up to 1: 2 • FIO2: 100% oxygen and air mix, approx. 45% • Equipment should be complete with carry bag, patient circuit, pressure regulator for the oxygen cylinder and relief valve. (Transport Ventilator Kit) • Provision for Pneumatic Suction &

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		Inhalational Therapy (1-15ltrs/min) should be built into the kit. • The above kit should be supplied with all required brackets / mounts to ensure mounting in ambulance and on stretcher rails without hampering patient care in an acute scenario. • Should have airway pressure monitor • Should have a disconnect alarm. (Visual and audible)
9.	**Suction Pump (Manual)**	• Portable & Lightweight • Vacuum (max): 550mmHg. • Non disposable container - 250ml connecting jar made out of polycarbonate • Operating environmental temperature: -20C to + 50C. • Maximum Weight: 500 gms
10.	**Suction Pump (electronic)**	• AC / DC / Foot Operated • Maximum negative pressure from –200 to –700mbar in steps of 100 or less with suitable setting marks. • Suction capacity 10-16 litre per minutes • Sufficient capacity 500ml secretion bottles with efficient over-flow protected with adjustable negative pressure (Min. 5 Nos. Polycarbonate & autoclavable with Overflow protection) • Ambulance Wall mountable • Rechargeable Battery with capacity of 90 minutes
11.	**Artificial Manual Breathing Unit (Adult)**	• Easy Grip manual resuscitator with Size 4 Clearhood transparent facemask with silicone cuff • Adult models (1500 to 2000ml bag capacity) • Standard 15-22mm Swivel connector allows connection to all common masks Endotracheal Tubes • Provision to give supplemented oxygen from reservoir providing 100% oxygen • Non-rebreathing valve enabling the

		patient to inspire oxygen from the reservoir bag • To be supplied in proper Carrying case
12.	**Artificial Manual Breathing Unit (Child & neonatal)**	• Easy Grip manual resuscitator with Size 0A Circular Pedi transparent facemask with silicone cuff • Child models (500 to 250ml bag capacity) • Standard 15-22 mm Swivel connector allows connection to all common masks Endotracheal Tubes • Provision to give supplemented oxygen from reservoir providing 100% oxygen • Non-rebreathing valve enabling the patient to inspire oxygen from the reservoir bag • To be supplied in proper Carrying case
13.	**Mouth to Mask ventilation device (Adult)**	• Of Reputed manufacturer's make
14.	**Mouth to Mask ventilation device (Child)**	• Of Reputed manufacturer's make
15.	**Oxygen Cylinder (Portable)**	• Preferably as a part of the portable resuscitation kit bag • Max. Working Pressure at 15O C: 150kgf/cm2 • Test Pressure: 250 kgf/cm2 • Water capacity: 1.0 ltrs • Gas Capacity (Cu.m.): 0.15 Cu.m. • Min. Wall Thickness 't" (mm): 3.2mm • Length 'L' Approx. (mm): 310mm • Tare weight approx. (kg): 2.5 Kg. • Built in / attached with Pressure gauge, regulator and cylinder wrench/key • Oxygen Transfer system from Bulk D-type cylinder to Portable cylinder
16.	**Nebulizer**	• Compressed air nebuliser • Atomiser (Diaphragm-type / Piston-type) electric aspirator • Motion Tolerant and for continuous use in Pre Hospital • Operating voltage: 230 V AC with Battery backup (with minimum 90

		minutes backup) • Maximum pressure 3.5 bar • Air power: 14 litres per minute • Aerosol output: 106 µl per minute • Residual volume: 1.24 ml • Droplet size: MMAD 3.3 microns • Filling volume: maximum 7 ml • Noise level: 55 dBA • In built thermal cut off systems desirable • Provision for fixing/Hanging in the Ambulance
17.	**Laryngoscope with blades**	• Standard equipment in metal with 3 standard size curved blades and one extra large blade (Adult & Child). • Handle should have comfortable grip. • Good quality light source
18.	**Volumetric Infusion Pump**	• Battery back-up • LCD programming display • Data entry calculator style numeric programming keyboard • Pole clamp Multi-function mounting clamp • Quick titration of rate or dose with volume-time programming • Flow rate range (primary) 0.1 to 99.9 ml/hr. (0.1 ml increments) and 1 to 1200 ml/hr. (1ml increments.) • Flow rate range (piggy back)-0.1 to 99.9 ml/hr.(0.1 ml increments) and 1 to 500 ml/hr (1ml increments) • Volume to be infused 0.1 to 99.9 ml (o.1ml increments) and 1 to 9999 ml(1 ml increments). • Both flow rates and volume to be infused should be configured to limit the maximum allowable range • Accuracy ±3%. • Basic unit should have 2 or more infusions control system in single unit
19.	**Syringe Infusion Pump**	• Flow rate programmable from 0.1 to 200 ml/hr or more in steps of 0.1 ml/hr with user selectable flow set rate option.

		• SAVE last infusion rate even when the AC power is switched OFF. • Bolus rate should be programmable to 400 – 500 ml/hr or more with infused volume display. • Reminder audio after every 0.5 ml delivered bolus. • SAVE last Bolus rate even when the AC power is switched OFF. • Display of Drug Name with a provision of memorizing 10~15 names • Keep Vein Open (KVO) must be available 1.0 ml/hr or set rate if lower than 1.0 ml. User should have choice to disable KVO whenever desired. • Occlusion pressure trigger levels selectable from 300/500/900 mmHg • Must Work on commonly available ISI/CE/FDA APPROAVED/CERTIFIED 20, 50/60 ml Syringes with accuracy of minimum of +/-2% or better. • Automatic detection of syringe size & proper fixing. • Must provide alarm for wrong loading of syringe such as flanges out of slot; disengaged plunger, unsecured barrel etc. • Anti bolus system to reduce pressure on sudden release of occlusion • Should have comprehensive alarm package including: Occlusion limit exceed alarm, Near end of infusion pre-alarm & alarm, Volume limit pre-alarm & alarm, KVO rate flow, Low battery pre-alarm and alarm, AC power failure, Drive disengaged and preventive maintenance • Rechargeable Battery
20.	**Handheld Glucometer**	• One unit of a reputed brand with 100 units of disposable lancets/tips and Gluco Sticks • The brand provided should have

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		supplies easily available across India
21.	**Stethoscope**	• Of a reputed brand • Tunable diaphragm and a bell • High quality buffed stainless steel snap tight ear tubes • Poly vinyl chloride double lumen tubing 76 cms in length • Soft sealing ear tips
22.	**BP Apparatus (Digital)**	• Two Nos. Of a reputed brand • Motion tolerant, self inflating • ± 2 mm of Hg systolic or Diastolic • AC / DC , Rechargeable in Ambulance • Supplied with regular/extra large and paediatric size cuffs
23.	**Pupillary Torch**	• Two Nos. Of a reputed brand with Spot illumination without peripheral ring of light
24.	**Needle & Syringe Destroyer**	• To be placed at an appropriate location to allow easy disposal of needles • Maximum weight 2.5 Kgs • Motion Tolerant
25.	**Thermometer (Digital)**	• Two Nos. • Battery operated • with on and off audio alarm • Measurable in Fahrenheit and Centigrade • Memory of the last reading
26.	**Pneumatic Splints set of 6 adult sizes with carrying case** **1. Hand & wrist** **2. Half arm** **3. Full arm** **4. Foot and ankle** **5. Half leg** **6. Full leg**	• X-ray through the splints • Inflatory tubes' extension with closing clamp makes closing easy and quick after inflation • Fixing of splint is by zipper or belt • Distal end left open to expose toes • Should be washable and reusable • Should be supplied with the appropriate pump required to inflate the splints
27.	**Roller Splints**	• Two Nos. of reputed manufacture make • The splint should be made from a thin

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		core of alloy, sandwiched between two layers of closed-cell foam • Should be extremely pliable • Can be used for all the sizes ▪ Small ▪ Medium ▪ large
28.	**Cervical Collars**	• Two Nos. of reputed make & quality • Should be adjustable to 4 different sizes. • Should have pre-moulded chin support, locking clips and rear ventilation panel, enlarged trachea opening. • Should be high-density polyethylene and foam padding with one piece design enabling efficient storage where space is limited • Should be X-ray lucent and easy to clean and disinfect
29.	**Scissors with Round tip**	• Two Nos. with Thermoplastic handles. • Should cut a 1 rupee coin. • 6" made of SS with one edge round and other edge sharp
30.	**Toothed Forceps-Dissecting**	• 15 cms, high tensile stainless Steel
31.	**Artery Forceps 6"**	• Two Nos. • 6", high tensile stainless Steel
32.	**Toothed Forceps 6"**	• 6", high tensile stainless Steel
33.	**Magill's forceps**	• Standard Equipment in High Quality Stainless Steel
34.	**Kidney Tray**	• 20 cms. x 15 Cm x 4 cm • 18/ 8 Stainless Steel. • 500 ml capacity
35.	**Klik Clamp**	• 50 nos. Of reputed make
36.	**Tongue Depressor**	100 nos. Disposable Wooden Spatulas
37.	**First Aid Kit Bag**	A Pre-Packed Off the Shelf Resuscitation & First Aid Kit Bag made of Nylon/tougher material having space for Emergency Airway Management and Resuscitation including essentials drugs, equipment & a portable Oxygen Cylinder of with regulator, etc.
38.	**Rescue Equipment**	Crowbar (min 48 inches, with pinch point)

		3. A multipurpose tool such as 'Stanley FuBar Forcible Entry Tool'/equivalent for vehicle extrication

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Apart from the above listed equipments, the ambulance should have adequate storage space for housing the following suggested list of Drugs/Consumables:

(These are not to be supplied along with but shall be the responsibility of the end user. However the bidder has to provide adequate space to house these in an appropriate quantity required during the ambulance's day to day running)

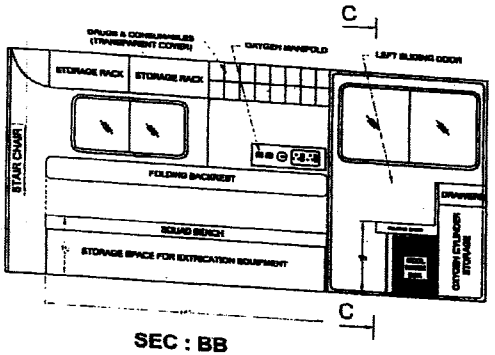
Drugs:

- Inj. Adrenaline
- Inj. Atropine
- Inj. Calcium Carbonate
- Inj. Dopamine
- Inj. Dobutamine
- Inj. Noradrenaline
- Inj. Nitroglycerine
- Inj. Sodium Bicarbonate
- Inj. Hydrocortisone
- Inhaler Beclomethasone
- Inhaler Salbutamol
- Inj. Frusemide
- Inj. Diazepam/Midazolam
- Inj. Deriphyllin
- Inj. Phenytoin sodium
- Inj. Avil
- Inj. Metachlorpropamide
- Inj. Ondansetrone
- Inj. KCl
- Inj. Lignocaine 2%
- Inj. Amiadarone (50 mg/ml)
- Inj. Magnesium sulphate 25% 2ml.
- Inj. Mannitol 20 %
- Inj. Morphine/Inj. Pethidine
- Inj. Noradrenaline bititrate 4mg
- Activated charcoal
- Inj. Naloxone HCl
- Inj. Fentanyl
- Bacteriostatic water for Injection
- Inj. Sodium Valporate
- Inj. Voveran
- Inj. Paracetamol
- IV Fluids
- G.V. Paint

Consumables:

- Cotton/Bandage
- Savlon/Betadine
- Leucoplast
- Pain Spray
- Mistdress Spray
- Vinodine Spray
- Coolex Spray
- Face Mask (Disposable)
- Surgical Gloves

- LMA disposable
- Wide bore needles
- Disposable L.P. Needles
- Syringes ABG (2 & 5 ml)
- Three way stop cork
- Extension I/V lines & IV canulas
- Disposable suction pumps
- ECG electrodes
- Lighted Stylets of different sizes
- Guedel's airway 00-5,00,0,1,2,3,4,5
- Nasal airways(all sizes) & catheters
- Binasal Cannula, Combitube, COPA
- Endotracheal Tubes (Various Sizes)
- Tracheostomytubecuff&Plain(allsizes)
- Mini Tracheostomy kit
- Ventimask, facemask with nebulizer
- Pressure Infusion Bags
- Rightangled Shivel Connector
- Micro drip-set & Drip-set
- Nasogastric Tubes
- Burn Pack : Standard package, clean burn sheets/Towels
- Triangular bandages (Minimum 2 safety pins each)
- Dressings : Sterile multi-trauma dressings (various large
- and small sizes); ABDs, 10"x12" or larger; 4"x4" gauze
- sponges; Cotton Rolls
- Gauze rolls Sterile (various sizes)
- Elastic bandages Non-sterile (various sizes)
- Occlusive dressing Sterile, 3"x8" or larger
- Adhesive tape : Various sizes (including 2" or 3")
- Adhesive tape (hypoallergenic) : Various sizes (including 2" or 3")
- Cold packs
- Disposable bags for vomiting, etc.
- Teeth guard
- Sample collection kits



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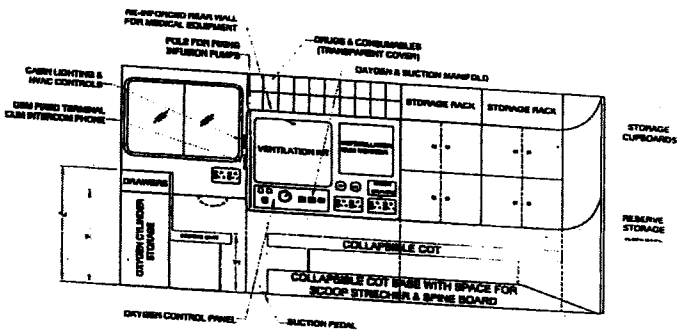

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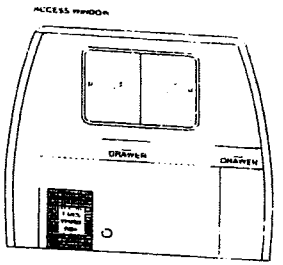

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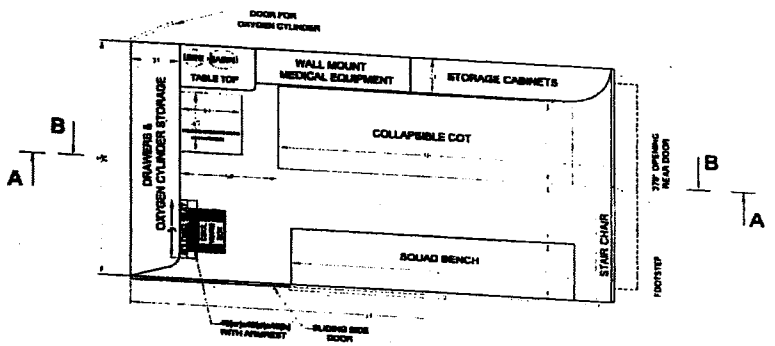

DEPARTMENT OF HOSPITAL ADMINISTRATION
AIIMS, NEW DELHI, INDIA
Above Sky Is The Limit

ALL DIMNS. ARE IN CMS

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ARAI Progress Through Research

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Supersedes

Superseded by

Project- WelFIT – Delhi, AIIMS SPECS FOR ALS AMBULANCE

Ref. Drg. No

Title- LAYOUT OF PATIENT CABIN

Drg No. CAE/LAYOUT/2010/002

Sheet 1 of 1